CLAIMS

What is claimed is:

1. A semiconductor laser chip, comprising:

a ridge structure at a junction surface of the laser chip; and

a plurality of pads only on non-active areas of the junction surface, wherein the plurality of pads protrude beyond an edge of the ridge structure.

2. The laser chip of claim 1, further comprising:

a substrate comprising the junction surface and a mounting surface, wherein the laser chip is capable of being mounted onto another surface at the mounting surface.

3. The laser chip of claim 1, wherein a manufacturing tool can abut the plurality of pads without abutting the ridge structure.

4. The laser chip of claim 3, wherein a vacuum force at which the manufacturing tool abuts the plurality of pads is optimized.

5. The laser chip of claim 1, wherein the plurality of pads functions as reference reticles for the manufacturing tool.

6. The laser chip of claim 1, wherein the ridge structure protrudes beyond an edge of the junction surface.

7. The laser chip of claim 1, further comprising a plurality of contacts on active areas of the junction surface, wherein the plurality of pads is disconnected from the plurality of contacts.

8. The laser chip of claim 1, wherein at least one of the plurality of pads comprises a metallic material.

9. The laser chip of claim 1, wherein at least one of the plurality of pads comprises a non-metallic material.

10. The laser chip of claim 1, wherein the laser chip functions at a frequency of approximately 1 GHz or higher.

11. The laser chip of claim 1, further comprising a source current modulated in time.

12. A method for providing a semiconductor laser chip, comprising the steps of:

(a) providing a ridge structure at a junction surface of the laser chip; and

(b) providing a plurality of pads only on non-active areas of the junction surface, wherein the plurality of pads protrude beyond an edge of the ridge structure.

13. The method of claim 12, wherein the providing step (a) comprises:

(a1) providing a substrate comprising the junction surface and a mounting surface,

wherein the laser chip is capable of being mounted onto another surface at the mounting surface.

14. The method of claim 12, further comprising:

(c) holding the laser chip using a tool, wherein the tool abuts the plurality of pads without abutting the ridge structure.

15. The method of claim 14, further comprising:

(c1) optimizing a vacuum force at which the tool abuts the plurality of pads.

16. The method of claim 14, wherein the plurality of pads functions as reference reticles for the tool.

17. The method of claim 12, wherein the ridge structure protrudes beyond an edge of the junction surface.

18. The method of claim 12, further comprising:

(c) providing a plurality of contacts on active areas of the junction surface, wherein the plurality of pads is disconnected from the plurality of contacts.

19. The method of claim 12, wherein at least one of the plurality of pads comprises a metallic material.

20. The method of claim 12, wherein at least one of the plurality of pads comprises a non-metallic material.

21. The method of claim 12, wherein the laser chip functions at a frequency of approximately 1 GHz or higher.

22. The method of claim 12, further comprising a source current modulated in time.

23. A high-speed, directly modulated semiconductor ridge waveguide laser, comprising:

a substrate comprising a junction surface;

a ridge structure at the junction surface, wherein the ridge structure protrudes beyond an edge of the junction surface; and

a plurality of pads on the junction surface, wherein the plurality of pads protrude beyond an edge of the ridge structure, wherein the plurality of pads reside only on non-active areas of the junction surface, wherein a manufacturing tool can abut the plurality of pads without abutting the ridge structure.